Alcatel-Lucent OmniPCX Enterprise Communication Server

Delivering powerful, reliable and scalable IP communications to drive your 21st century business

PRODUCT OVERVIEW

The Alcatel-Lucent OmniPCX Enterprise Communication Server (CS) is a highly scalable solution based on a pure software communication server platform that provides multimedia call processing for both Alcatel-Lucent and third-party clients/phones including TDM, IP and SIP.

This rich call-handling application delivers world-class business telephony features for medium, large, and very large sized companies and offers a choice of either centralized or decentralized IP telephony solutions.

The Alcatel-Lucent OmniPCX Enterprise CS provides the building blocks for any IP and/or legacy communications solution, incorporating the latest Linux, XML, SIP, VXML technologies, and open standard practices such as QSIG, H.323, CSTA, and SIP. It offers broad scalability ranging from 10 to 100,000 users who can be spread across multiple geographical sites. Plus, it offers highly reliable, real-time, carrier-grade performance solutions with an unmatched 99.999% uptime.

The Alcatel-Lucent OmniPCX Enterprise offers:

- *Architectural flexibility*, which enables centralized or decentralized IP configurations, a choice of IP, IP/TDM or TDM, which minimizes additional investment, and at the same time, ensures interoperability through support of open standards. The Alcatel-Lucent OmniPCX Enterprise provides SIP at the core, enabling a smooth migration at your own pace, when and where it makes financial sense.
- *Simplified management*, because the same network management software is used across the enterprise, independent of the underlying infrastructure. The Alcatel-Lucent OmniVista Network Management System is a single, open management platform designed to manage and control a global, OmniPCX IP communication solution.
- *Intelligent networking*, reducing the cost to support all users at different sites. For instance, feature transparency across servers, or advanced route selection (ARS) is available from any site without having to duplicate the software at each site. A single image across fully networked servers provides simplified management of large and very large configurations.

- *Openness, interoperability and integrated solutions.* The OmniPCX Enterprise integrates open standards and state-of-the-art technologies to provide a very flexible solution. Alcatel-Lucent helps maximize customer investment returns by simplifying the interworking and integration of its solutions within existing or future communication environments. This is supported by hundreds of applications validated through the Alcatel-Lucent Application Partner Program (AAPP).

FINANCIAL BENEFITS

A rapid and measurable return on investment and visible savings:

- Shared bandwidth in multi-site networking yields 5% to 30% savings in subscription and communication costs
- Centralizing applications yields 5% to 20% savings in carrier subscription and communication costs
- Integrated management of data and voice networks yields 10% to 40% savings
- Centralized maintenance, upgrades and related operations yield 5% to 20% savings
- Moves, adds and changes (MACs) yield 20% to 30% savings – 30% to 60% savings in cabling!
- Fixed/mobile convergence solutions (cellular extension and dual-mode WiFi/SIP) yield 10% to 20% savings of cellular costs
- Embedded IP contact center improves customer satisfaction from have a faster response
- Smooth migration path yields 20% to 50% savings in PBX annual hardware investment

The world's leading IP communications platform for medium-sized to very large enterprises.

TECHNICAL SPECIFICATIONS

Software

- Client/server
- Chorus MIX micro kernel operating system
- SQL/CQL database
- Linux LILO/GRUB-compliant
- Linux Red Hat and Linux Kernel 2.4.17

System

- Centralized or distributed system
- Communication server and database duplication
- Main-standby seamless communications fail-over
- Passive communication server watchdog: central or remote
- Single server: 15,000 IP users/5,000 TDM users
- 100 servers in a single network
- Fully networked servers, 100,000 IP/TDM users with single image
- 250 servers in a supra network
- >1 million users in a supra-network
- BHCC per server: 300,000

Hardware

- Industry appliance servers or "in-the-skin processing"
- Native Ethernet connectivity on all CPUs
- Modular hardware
- TDM or IP switching
- Power supply
- Auxiliary power supply

Alcatel-Lucent My Instant Communicator Clients and IP Touch phones

Desktop softphone: My Instant Communicator Client (ICC)[1]

- Business communication services
- Thick and thin client versions/Microsoft toolbar (Systray)
- Incoming/outgoing interaction management including instant message, voice, presence, video
- Personal and group phonebook
- Call-by-name through universal directories access with presence
- Directory pop-up
- Call log (history call files)
- Visual mailbox
- Multi-line mode
- Manager/assistant
- Mobile or fixed set tandem

1. Requires the Alcatel-Lucent Unified Communications Server

- Softkeys
- Call planning
- Call related notes
- Access to collaborative services (My Teamwork)
- TAPI, MAPI, DDE, OLE.com, LDAP
- Integration within Lotus Notes and Microsoft Outlook
- Kit/library for developers such as Alcatel-Lucent's XML Telephony API v1.0

Desktop phones: IP Touch 8 and 9 series

- Business Communication Services (see next section)
- Embedded alpha keyboard for:
  - Instant messages
  - Call-by-name: internal, external user, LDAP
- Add-on supervision modules
- Absence message
- Adjustable handset volume
- Centralized directory, spelling and syntax adjustment
- Call-by-name can be used in all communication contexts (direct call, inquiry and more)
- Caller name display
- Conditional/unconditional differentiated forwarding of multiple directory numbers
- Contextual voice prompts
- Fixed function keys
- Hands-free
- Headset capability (Bluetooth, etc.)
- Help key
- Individual customization
- Informative icons
- Interactive guidance with softkeys
- Language synchronization: display, voice prompts, and voice mail
- Loudspeaker announcement
- Multiline: multi-appearance and multi-numbers
- Multilingual (user choice)
- Macro commands
- Message waiting indication
- Mini-text messages
- Personal password for consultation of non-reply
- Personal calls log
- Programmable function key
- Supervision of user/trunk/bundle

Mobile phones: Mobile IP Touch 310/610 (WLAN) and 300/400 (DECT)

- Business communication services (see next section)
- Absence message
- Adjustable handset volume
- Call-by-name: internal and external user
- Centralized directory, spelling and syntax adjustment
- Call-by-name can be used in all communication contexts (direct call, inquiry and more)
- Caller name display
- Conditional/unconditional differentiated forwarding of multiple directory numbers
- Contextual voice prompts
- Hands-free
- Headset capability
- Help key
- Individual customization
- Informative icons
- Interactive guidance with navigator
- Language synchronization: display, voice prompts and voice mail
- Multiline: multi-appearance and multi-numbers
- Multilingual (user choice)
- Message waiting indication
- Mini-text messages
- Personal calls log
- Programmable function key
- Full integration with notification servers (AAPP) and location based services (AAPP)

Cellular PDA and Smartphone Client: ACE 2.2 (Microsoft Windows 2005)/ Nokia ICC 1.0/Nokia ICC 2.0 (dual mode)

- Business communication services (see next section)
- ONE number (ubiquity service)
- Remote configuration (SMS)
- Caller line identification display
- Conditional/unconditional differentiated forwarding
- Reverse call
- Least cost routing services
- Menu guidance with navigator selection
- Informative icons
- Multilingual (user choice)
- Corporate voice mail access
- Personals calls
- Activation of business or private mode

Standard Business Communication Services

- Speed dialing
- Account code charging
- Appointment reminder
- Associate (definition, modification by user)
- Automatic call-back on busy trunk/bundle/network link
- Automatic call-back on free/busy extension
- Broker's call
- Call forwarding unconditional on busy/no reply to extension, hunt group, voice mail, operator, paging, etc.
- Call pick-up

- Call waiting indication
- Calling line identification restriction for internal calls
- Camp on busy telephone/hunting group/ voice mail
- Conditional external forwarding (busy or no reply)
- Call waiting
- Controlled private call by PIN code and password (optional)
- Distinctive ringing according to hierarchical levels
- Do not disturb
- General night service
- Hunting group (fix head, cyclic, longest idle time, parallel)
- Immediate forwarding
- Individual hold
- Individual directory
- Internal/external music on hold
- Internal/external inquiry call
- Intrusion
- Last internal/external number redial
- Local and external call
- Moving service
- Multiline appearance (MLA)
- Multiline selective forwarding
- Multiple conference calls
- Multiple call protection

Multi-tenant services

- Speed dial numbers per entity
- Calling line identification
- Integrated auto attendant services per entity
- Calling line identification presentation (CLIP) per entity
- Greeting message per entity
- Music on hold per entity
- Night service per entity
- Over-dialing
- Personal code modification
- Priority call
- Store and redial external number
- Substitution
- Three-party conference
- Transfer in conversation on free/busy telephone
- 29-party, meet-me conference
- Voice prompts on/off per telephone
- Voice message deposit on forwarded telephone
- Call-waiting pickup

Advanced Business Communication Services

- Calling line identification presentation/restriction (CLIP/CLIR)
- Digit-by-digit dialing mode
- End-block dialing (digit correction possible)
- ISDN, H.323 or SIP identification (CLIP) converted into name
- ISDN mini-text messages (carrier-dependent)
- Malicious call identification
- Storage of unanswered calls with date, time and callback
- Sub-addressing

Manager-assistant team

- Access to manager's voice message headers from assistant's telephone
- Filtering scenario allocation to designated assistant
- Flexible configuration: multiple manager/assistant team
- Forwarding of private line
- Immediate forwarding of manager telephone to assistant activated by manager or assistant
- Manager-assistant specific online text messaging
- Manager discreet listening (on filtered lines only)
- Overflow assistant in case of main assistant absence
- Private lines
- Main assistant, absence notification and assistant overflow
- Selective filtering (scenarios)

Teamwork configuration

- Common/exclusive hold
- Group call pick-up
- Hunting groups
- Log on, log off
- Manageable ring indicator
- Manageable waiting queue

MyPhone on IP Touch 4068[2] and 4038[2]

- Call log (incoming/outgoing calls made)
- Call-back list (non-answered calls)
- Universal directory access (UDA: LDAP call-by-name)
- Telephony and instant messaging (IM) presence
- IM fully integrated with telephony (i.e., IM to answer a call)

Buddy list

- Direct access to conference
- Instant video escalation (available on IP Touch 4028 as well)

Hotel Communication Services

- Available on all desktop phones (IPT or analog)
- Check-in/check-out individual or group
- Pre-check-in/partial check-out
- Cyclic DDI
- Multi-occupant room
- Room allocation from the telephone
- Do not disturb
- Guest/patient personal code
- Internal call barring
- DDI call barring according to time schedule
- Wake-up service (up to four wake-up calls per room)

Room service

- VIP
- Guest number or name
- Called service identification
- Guest language
- Room status
- Multilanguage voice prompts (eight simultaneous languages)

Room directory

- Call-by-name
- Prepayment (deposit)
- Flexible suites
- Alcatel-Lucent hotel/hospital link (AHL)
- Secret identity for calls between rooms
- Public booth
- Guest personal identification number
- Manual call detail record (CDR) creation
- Minibar
- Billing

Attendant Services[3]

- Abbreviated dialing
- Activation/deactivation of DND
- Add-on module
- Alarm indication
- Attendant groups
- Automatic answer
- Attendant specialization options (individual or group)
- Busy lamp field
- Call-by-name in all communication situations
- Call charge request (carrier dependent)
- Centralized or distributed attendant in network
- Call queuing with indication
- Call routing depending on class of traffic, DID, company or called service (entity)
- Call waiting with indication
- Called party resources
- Call pick-up
- Charging recall service (carrier dependent)
- Chained call
- Choice of system status
- Conference
- Creation, cancellation and modification of abbreviated number with name
- Creation, cancellation and modification of subscribers (name, rights and more)
- Discrete call offer
- Discrete call offer by mini-text messages on busy/free
- Reflexes telephone
- DTMF over dialing
- Large busy lamp field
- Flexible attendant routing time-out overflow based on caller waiting time
- Headset capability
- Hold individual or multiple
- Create/delete directory items
- Internal call name/number displayed
- ISDN VIP monitoring
- Last number redial
- Line reservation
- Malicious call identification
- Manual reservation mode
- Mini-text messages
- Multi-tenant services
- Override on directory number
- Paging
- Password
- Personal call
- Priority call (internal/external)
- Receipt and read charging units and costs (carrier-dependent)

2. Requires the Alcatel-Lucent Unified Communications Server

3 Attendant services offered according to attendant position type

- Record online on associated entity
- Status of calls routed to operator
- Store and number redial
- Synchronized multinode routing (entity)
- Time and date display
- Transfer with/without announcement
- Trunk allotting with barring
- VIP telephone monitoring

Attendant Positions

- Greeting attendant on IP Touch 8 and 9 series
- PC based IP attendant
- Advanced Attendant Operator 4059
  - IP Touch phones for audio (8 or 9 series)
  - Multifunctional keyboard

Integrated Greeting

- Integrated automated attendant
- Personal automated assistant with context-sensitive greeting
- Synchronized greeting message

Voice and Fax Mail

- Automated attendant
- Call transfer
- Direct reply on receipt message
- Extended recording and playback control function
- Fax broadcast, on demand, overflow, store and forward
- General distribution lists
- Greeting message according to user status
- Immediate or supervised transfers
- Message acknowledgment
- Message attributes: urgent, normal, private
- Message notification via light, display, dialing tone, voice prompt, outgoing
- Multilanguage
- Multi-user password
- Networking protocols: IMAP4, VPIM, Octelnet and Amis
- Private distribution lists
- Record online
- Shared mailbox: home, guest, and assistant mailbox
- User-friendly interface on Reflexes telephones via softkeys or via PC-client visual messenger
- Voice message attached to a fax
- Voice and DTMF forms
- Web access to voice and fax messages
- Alcatel-Lucent 4645: Embedded software-based voice mail for small/medium sites (branch autonomy)

Alcatel-Lucent OmniPCX Enterprise OmniTouch Contact Center Standard Edition

- Active matrix call distribution
- Call flow based on pilot
- Skill- and cost-based distribution
- Conditional pilot overflow on voice mail
- Look ahead call routing
- Pilot forwarding to other pilot
- Pilot routing to waiting queue according to priority
- Routing time schedule
- Types of queues: waiting, help and dissuasion
- Virtual pilot
- Intelligent routing
- Outbound call management
- Direct agent call management
- Remaining wait time announcement
- Integration with outbound campaign management
- Native integration with IVR

Voice guidance

- External voices guides
- Synchronized internal voices guides
- Storage from audio station or Reflexes telephone

Agent features

- Administrative withdrawal
- Agent break
- Agent direct call with statistics
- Agent can belong to different groups
- Digital recording IP and TDM (DR-Link)
- CCA applications: Reflexes telephone on toolbar providing personal statistics
- Group selection: fixed head, cyclic, longest idle time
- Free sitting agent position
- Help supervisor
- Home agent with analog telephone or Reflexes telephone
- Logon/logoff
- Open or close pilot from agent position
- Personal call barring
- Suspension of group waiting queues
- Transaction code
- Wrap-up (automatic or manual)

Supervision and statistics

- Alarm handling
- Call level information
- Customizable alarms
- Customizable reports
- Detailed communication reports
- Reports based on communication events
- Discrete call listening for supervisor
- Microsoft Excel-based statistics and reporting
- Export of communication reports (ASCII files)
- Free sitting supervisor position
- Full Windows user interface
- Native Windows management look and feel
- Predefined reports
- Real-time service level per pilot
- Real-time statistics
- Statistics compilation and archive (FTP)
- Wallboard display control

Alcatel-Lucent OmniPCX Enterprise OmniTouch Contact Center Premium Edition

Segmented media distribution

- Visual CC user interface reuse of popular/patented CCS matrix concepts
- Visual CC Windows Explorer drag-and-drop configuration capabilities
- Blended email and voice routing and distribution
- Contact flow based on type of service qualification
- Contact segmentation based on qualification
- Visual IVR call prompting with DB lookup
- Visual IVR embedded reusing OmniPCX resources, no additional hardware
- Visual IVR navigator icon selected from Visual CC user interface toolbar
- Visual IVR script creation via drag-and-drop icons
- Optional integration with full-featured IVRs
- Email auto-acknowledgment and redirection
- Email keyword classification
- Email backlog and work-bin management
- Skill- and cost-based resource distribution
- Contact queue management: waiting, dissuasion, overflow
- Conditional overflow defined by contact center activity
- Estimated waiting time information with options
- Look ahead contact routing
- Multistage queuing
- Multilevel prioritized queuing
- Multimedia group, queue and agent selection
- Scheduled time-of-day routing
- Outbound call management
- Integration with outbound campaign management

Voice announcement
- Agent tutorial voice guides
- Routing voice announcement updates
- Redirection, closing, opening announcements
- Recording from audio station or telephone

Agent features
- Administrator unavailable
- Agent unavailable with reason
- Agent private call tracking
- Consult, transfer, conference
- Logon/logoff
- Private call barring
- Wrap-up
- Supervisor assist
- Agent skill and group levels
- Group selection: cyclic, top down, longest available
- Emergency conversation recording
- Optional digital recording IP and TDM (DR-Link)
- Agent desktop VoIP and IP plug-in
- Multimedia Genesys Agent Desktop (GAD) interface
- Desktop with screen-pop and contact history
- Free sitting agent position
- Alcatel-Lucent IP Touch 8 and 9 series telephone support
- Remote IP agent

Supervisor features
- Visual CC easy to use, Windows-compliant management and monitoring tools
- Object configuration
- Drag-and-drop media distribution design
- Object alarm monitoring
- Alarm/alert customization
- Object including both voice and email – real-time statistics monitoring
- Service-level management and monitoring
- Object including both voice and email-historical predefined Excel statistics reports
- Scheduling and generation of historical reports
- Enhanced, easy-to-use customization of Excel reports
- Supervisor call monitoring barge in and discrete listening
- Remote agent state change management
- Agent licensing overrun capability
- Overrun option automatically increases agent licenses during 10-day peak period by 30%
- Overrun unique in the industry

System specifications
- Genesys Release 7.2
- Wizard installation procedures
- IP connectivity to OXE
- Windows 2000 and XP
- Microsoft SQL database
- Unicode supporting multiple languages
- Customizable, visual CC user interface
- Zero footprint deployment

Openness options
- Wallboard connectivity
- End-to-end detail statistics reporting
- Peripheral IVR connectivity
- Workforce management system interface
- CRM Gplus adapters – Microsoft Dynamics, SAP

Professional services provided options
- Interface to Remedy, Salesforce, Pivotal
- CC Teamer real-time communication with presence status, conferencing and collaboration via Teamwork desktop integration

Mobility Infrastructure DECT
- Radio DECT/GAP
- Radio frequency range
  - 1.88 GHz to 1.90 GHz (Europe)
  - 1.91 GHz to 1.93 GHz (South America)
  - 1.92 GHz to 1.93 GHz (U.S.) with power adaptation
- Optimized Radio Base Station (IBS)
  - Six simultaneous communications
  - Connectivity: 2 x UA interfaces
  - Inline-powered
- Advanced Radio Base Station (RBS)[4]
  - 12 simultaneous communications
  - Dedicated system board DECT8
  - External power supply
  - Outside versions
- Frequencies
  - European
  - North American
  - Latin American
  - Asian

Mobility Infrastructure Wi-Fi
Wi-Fi infrastructure – OmniAccess Wireless access points and WLAN controllers

Wireless standards
- IEEE 802.11a/b/g, IEEE 802.11i

Radio frequency range
- 2.4 GHz to 2.4835 GHz ("b" and "g")
  - 5.150 ~ 5.250 GHz (low band)
  - 5.250 ~ 5.350 GHz (mid band)
  - 5.470 ~ 5.725 GHz (Europe)
  - 5.725 ~ 5.825/5.850 GHz (high band)

Automated radio coverage
- Up to 32 SSIDs per access point
- Dynamic RF management for AP channel power and channel optimal setting
- Self healing around failed access points

Wireless security
- WEP, WPA, WPA-PSK, WPA2 and WPA2-PSK
- Integrated stateful firewall
- Rogue access point detection and containment
- Wireless IDS/IPS

Quality of service
- Standardized
  - Over-the-air QoS: 802.11e-WMM (EDCA)
  - 802.11e Power Save (U-APSD)
  - 802.11e Traffic Specification (TSPEC)
- SRP mode
- Connection Admission Control with graceful load balancing
- 802.1p, DiffServ marking

Call persistency
- Proxy mobile IP for layer 3 handover
- Fast handover – WPA2 opportunistic key caching
- Voice-aware scanning
- Voice-aware 802.1x reauthentication

Telephony protocol decode
- SpectraLink Radio Protocol (SRP)
- Alcatel-Lucent OmniPCX (NOE)
- SIP

Paging
- Connections handled by the Alcatel-Lucent OmniPCX Enterprise: ESPA 3 protocol
- External call waiting on voice prompt
- Internal and external calls transferred to pager
  - On selection
  - Immediate forward
  - No reply or busy
  - Paging by prefix or suffix

Voice over IP
- G.711 A-law and µ-law digital voice compression algorithm
- Compression algorithm: G 723.1A, G729.AB
- Compression rate: 6.4 Kbps/8 Kbps
- Automatic compression algorithm allocation
- Dynamic jitter buffer
- Echo cancellation: 64/128 ms with voice signal analysis and signal quality enhancement
- Packet loss concealment (PLC)
- VAD: silence suppression and comfort noise generation
- Packet framing: 20, 30 and 40 ms
- Call admission control to IP domains
- DTMF Q23 codes interpreted, coded and regenerated (robust DTMF relay, RFC 2833 or out-of-band)
- Generic signal qualification and modem transport

4. Not available in North America

- Anti-saturation mechanism; backward and forward automatic gain control
- Embedded signal quality diagnostic tool
- QoS: TOS or DiffServ tagging, 802.1 p/Q

Fax

- G3, super G3 fall-back
- Automatic fax detection
- Fax: G.711 transparent (Alcatel-Lucent protocol) and T.38 (Alcatel-Lucent protocol, H.323 and SIP)

Service continuity

- Backup signaling link on media gateway
- Passive communication server

Private networking protocols

- Alcatel-Lucent Business Communication (ABC-F) Networking protocol based on enhanced QSIG (tunneling) and H.323 for VoIP
- Line, star, meshed configurations
- Multi-vendor networking: QSIG BC, GSIG GF, QSIG Supplementary Services (SS) and DPNSS for TDM connectivity

H.323, SIP for IP connectivity

- Analog and digital channel associated signaling protocols
- ABCVPN for networking over ISDN/PSTN network (signaling on IP network)

ABC-F: Telephone Features

- 3-party conference
- 6-party casual conference
- 14-party meet-me conference
- 29-party conference
- Alcatel-Lucent Hospitality/Healthcare Link (AHL)
- Auto-assignment for guests/patients
- Automatic call back on busy private link
- Basic call
- Broker call
- Call back on busy links
- Call back on free or busy extensions
- Call by name
- Call deflection
- Call offer
- Call waiting indication
- Camp on
- Conditional forwarding (forwarding on no reply, forwarding on busy)
- Data communication
- DISA
- Distinctive ringing based on hierarchies
- Do not disturb
- Entity routing for multi-company/department configuration
- Hold
- Individual call pickup
- Inquiry call
- Intercom call
- Intrusion
- ISDN supplementary services
- Number and name identification
- Reading of personal charging pulse meters
- Retransmission of last number dialed
- Substitution
- Text mini-messaging
- Transfer
- Transparency in decade and Q 23 dialing
- Unconditional forwarding.

ABC-F: Distributed GroupWare Features

- Associate in network
- Conditional forwarding to associate
- Hunting group of subscriber
- Immediate forwarding to associate
- Manager/assistant filtering team
- Object supervision: free, partially busy, totally busy, ringing
- Supervision of trunk, bundle, subscriber

ABC-F: Mobility Features

- On-site mobility in network: roaming, user rights and accounting allocated to home node number
- Paging services in networks
- Remote forwarding
- Substitution
- Ubiquity services

ABC-A: Networking Applications

- ACD
- Centralized ACD supervisor in network with real-time supervision
- Centralized or shared messaging system distributed in network
- Centralized Contact Center (OTCC)
- Centralized OTUC (messaging, softphone, collaboration, assistant)
- Mutual aid between ACD groups in different nodes with look ahead call routing

ABC-R: Routing Mechanism

- Adaptive routing
- Automatic Route Selection (ARS):
  - Access to alternative routes based on caller rights
  - Multi-tenant
  - ARS time dependent: day of the week, hour, and minute of the day
  - ARS per IP domain
- Cost limit barring per user/installation status
- Dialing command tables with add/delete digits for number
- Direct or indirect multi-carrier access
- Five daily tables per weekly table
- Information (voice prompt) to callers if cheapest route is not available
- Information (voice prompt) to caller if he/she needs permission to use a more expensive route
- Break in
- Break out
- Break in via secured DISA
- Forced on net homogeneous numbering plan

ABC Network Management

- Management from attendant
- CLI local management
- Centralized or distributed management from external applications
- Topology map
- Configuration
- Alarm management
- Call accounting
- Directory
- Traffic analysis
- Security
- Graphical user interface
- Remote management
- Alarm domains and alarm centralization
- Audit mechanism
- Broadcast of configuration data
- Remote maintenance access
- Remote software downloading

Voice-Based Virtual Private Networks (VPN)

- ABC VPN via overflow to public ISDN, QSIG
- Dissociating signaling over IP network (lower bandwidth)
- Full ABC services

QSIG - Basic Call

- Calling line identification
- Connecting line identification
- Data calls bearer
- Malicious call identification
- Sub-address

QSIG - Generic Function Protocol

- QSIG - Supplementary services
- Advice of charge
- Call completion on no reply
- Call completion to busy subscriber
- Call forwarding - busy
- Call forwarding - no reply
- Call forwarding - unconditional
- Calling/connected line identification restriction
- Calling/connected name identification restriction
- Calling line identification presentation
- Calling name identification presentation
- Call transfer
- Call offer
- Connected line identification presentation
- Connected name identification presentation
- Generic functional procedures
- Message waiting indication
- Path replacement

DPNSS

- Call back when free (call completion on busy phone) (9)
- Call forwarding (11)
- Call offer (14)
- Call waiting (17)
- Centralized night service (25)
- Conference (13)
- Do not disturb (32)
- Hold (12)
- Inquiry call (13)
- Intrusion (10)
- Loop avoidance (37)
- Route optimization (19)
- Service independent string (16) name
- Transfer (13)
- Voice and data call (6 and 7)

Session Initiation Protocol (SIP)

- SIP proxy/registrar/redirect server and SIP gateway
- Server redundancy (active/passive)
- Authentication (http digest)

Supported SIP standards

The Alcatel-Lucent OmniPCX Enterprise Communication Server is based on the latest SIP standards. The following RFCs are supported. They can be found on the IETF site at http://www.ietf.org

- RFC 1321 The MD5 Message-Digest Algorithm
- RFC 2327 SDP: Session Description Protocol
- RFC 2617 HTTP Authentication: Basic and Digest Access Authentication
- RFC 2822 Internet Message Format
- RFC 2833 RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals
- RFC 3261 SIP: Session Initiation Protocol
- RFC 3262 Reliability of Provisional Responses in the Session Initiation Protocol (SIP)
- RFC 3264 An Offer/Answer Model with the Session Description Protocol (SDP)
- RFC 3265 Session Initiation Protocol (SIP)-Specific Event Notification
- RFC 3323 A Privacy Mechanism for the Session Initiation Protocol (SIP)
- RFC 3324 Short Term Requirements for Network Asserted Identity
- RFC 3325 Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks
- RFC 3398 Integrated Services Digital Network (ISDN) User Part (ISUP) to Session Initiation Protocol (SIP) Mapping
- RFC 3515 The Session Initiation Protocol (SIP) Refer Method
- RFC 3842 A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)
- RFC 3891 The Session Initiation Protocol (SIP) "Replaces" Header
- RFC 3892 The Session Initiation Protocol (SIP) Referred-By Mechanism
- RFC 3966 The tel URI for Telephone Numbers
- RFC 4028 Session Timers in the Session Initiation Protocol
- draft-ietf-sip-session-timer-04.txt
- ITU-T T.38 Procedures for real–time Group 3 facsimile communication over IP networks
- RFC 3263 Session Initiation Protocol (SIP): Locating SIP Servers
- RFC 2782 A DNS RR for specifying the location of services (DNS SRV)
- RFC 3581 An Extension to the Session Initiation Protocol (SIP) for Symmetric Response Routing

SIP end-point features

- Call hold
- Consultation hold/toggle
- Transfer early attended
- Transfer attended
- Call forward, unconditionally
- Call forward on busy
- Call forward on no answer
- Third-party conference
- Voice mailbox access
- Message waiting Indication
- Do not disturb
- Call admission control
- Accounting
- CoS/barring
- Speed dial
- DTMF
- Fax T.38

SIP remote extension features

- RFC 2976 –DTMF info
- Call hold
- Consultation hold/toggle
- Transfer early attended
- Transfer attended
- Call forward, unconditionally
- Call forward on busy
- Call forward on no answer
- Third-party conference
- Call park/unpark
- Call pickup/supervision
- Automatic call back on busy or no answer
- Click-to-dial (with softphone)
- Voice mailbox access
- Message deposit
- Message waiting indication (MWI)
- Do not disturb
- Speed dial
- Identity secrecy
- Call admission control
- Accounting
- CoS/barring

- CTI applications
- Hunting group
- Meet-me conference
- Intrusion
- Twinset/tandem
- Remote forwarding
- Business account code

SIP private trunking

- Call hold
- Consultation hold/toggle
- Transfer early attended
- Transfer attended
- Call forward, unconditionally
- Call forward on busy
- Call forward on no answer
- Third-party conference
- Message waiting indication
- Do not disturb
- Call admission control
- DTMF
- Fax T.38

SIP public trunking and next generation network connectivity

- Basic call out-going with number and name display
- Basic call in-coming with DDI with number display
- Calling line/name identification presentation (CLIP)
- Calling line identification restriction (CLIR)
- Connected line/name identification presentation (COLP)
- Connected line/name identification restriction (COLR)
- Call forwarding unconditional (CFU) and on busy/no answer (CFB/CFNR)
- Call hold
- Inquiry/broker/conference
- Attended transfer
- Early attended transfer
- DTMF over-dialing RFC 2833
- Fax T.38 support
- Same integration with user and system call handling features available for ISDN trunks
- Authentication for outgoing calls/incoming calls
- Dynamic or static registration of OmniPCX SIP gateway to carrier SIP proxy (with or without authentication)
- Alternate SIP proxy through ARS
- SIP "keep alive" to SIP proxy
- Several SIP trunks/providers
- Call admission control (CAC) on SIP

Security

The OmniPCX Enterprise products and solutions are part of the global Alcatel-Lucent CrystalSec security polices and best practices framework (security-by-default strategy).

Global security certification

- Common criteria EAL2+ (ongoing since Q2/2007)

Authentication

- IPBX server management
  - Local authentication database (password policy enforcement)
  - Remote authentication (RADIUS)
- Client/device (IP Touch) network access
  - IEEE 802.1X MD5

Traffic filtering

- IPBX server
  - Trusted hosts file
  - TCP wrapper function
- Client/device (IP Touch)
  - ARP spoofing protection
  - PC port switch VLAN filtering

Encryption

- IPBX server configuration mode:
  - SSHv2 for secure sessions (Telnet, FTP, etc.)
  - SSLv2/v3 for secure HTTP session
  - SNMP v1/v2c/v3 for complete NMS integration
- Client/device confidentiality (signaling protocol and media):
  - IPSEC and Secure RTP (AES 128 bits)

Integrity

- Media gateway and IP Touch binaries signatures
- System maintenance and access
  - Dual port (hot standby mode)
  - Local and remote logging (syslog)
  - Serial console port for local and remote (call back modem dialup) access
  - Network time protocol (NTP) server and client for network-wide time synchronization

User authorization to communication services

- Call monitoring feature with Alcatel-Lucent OmniVista 4760 Network Management System (NMS)
- Internal toll fraud protection by class of services
- Definition of PIN codes for business or personal call
- Restricted access for transfer/forwarding barring categories
- Secure access to direct inward system access (DISA) function

Management

- Centralized or distributed management
- Client-server architecture (Client: Windows 2000 Pro/XP/2003/Vista; Server: Windows XP Pro/2003)
- Web-based management for full access

Configuration

- Moves, adds and changes
- Unified graphical interface
- Profiles for creation/modification
- Import/export from text files

Network maintenance

- Automatic backup and software download (communication server and passive communication server)

Faults and alarms

- Alarm filtering, actions on alarms
- Alarm list with colors according to severity
- Alarm real-time notification
- Alarm statistics

Topology

- Topology maps updated in real time with the alarms
- Drill down from the network view to the faulty board

LDAP corporate directory

- Automatic update with OmniPCX Enterprise
- Import/export in LDIFF
- Access through standard LDAP v3 clients
- Web directory with search and click-to-call

Call accounting

- Organization map
- Time-based cost calculation
- Carrier cost simulation
- Call tracking
- Predefined/customizable graphical reports

Performance

- Traffic analysis per: trunk, bundle, attendant/attendant group, on-site wireless installation, DDI number, group of users

VoIP Performance

- Reports by IP domains and OmniPCX IP equipment (IP phones, boards)
- Reports on volumes and quality of service

Common reporting services

- Multiple graphical report formats (CSV, HTML, PDF, XML)
- Hitlist, summary and detailed reports
- Reports distribution by email

Racks

- Standard IBM eServer xSeries 306 Mabolas
- 1 dual-core Conroe processor; 1066 MHz FSB
- 4 DIMM slots – 8 GB max, DDR II memory 667 MHz
- Up to 2 HS SAS (3.5 or 2.5) or SATA HDD
- Up to 2 Simple Swap SATA HDD
- SAS HW RAID (LSI chipset – RAID 0,1)
- Dual Gigabit Ethernet
- Depth: 22 in. (558.8 mm)
- Height: 1.75 in. (44.45 mm)
- Width: 19 in. (482.6 mm)

Standard IBM eServer Blade Center HS20 (800 MHz)

- Dual Intel Xeon EM64T 3.2 GHz/3.4 GHz/ 3.6 GHz with 800 MHz Front Side Bus
- 14 blades per chassis (30 mm blade width)
- 2 Gb Ethernet ports standard
- 4 DIMM slots
- Up to (2) 73 GB SFF SCSI with RAID 1 stand
- Depth: 28 in. (711.2 mm)
- Height: 12 in. (304.2 mm)
- Width: 17.5 in. (444 mm)

Standard HP ProLiant DL320 G5

- Pentium D dual-core processor with 2 MB (2 x 1 MB) of L2 cache
- Processor core speeds up to 3.20 GHz
- 800 MHz front side bus
- Up to 8 GB of DDR2 (next-generation evolution of DDR memory technology) PC2-4200 memory
- Pluggable 3.5 in. SAS/SATA hard drive bays
- Depth: 24 in. (609.6 mm)
- Height: 1.7 in. (43.2 mm)
- Width: 16.8 in. (426.2 mm)
- Weight: 27 lb (12.27 kg)

Alcatel-Lucent OmniPCX Enterprise RM1 (19 in. rack)

- 3 modular slots (stackable up to 3 with RM3)
- Takes optimized hardware modules (or/and e-CS communication server)
- Depth: 15.75 in. (400 mm)
- Height: 2.60 in. (66 mm)
- Width: 17.40 in. (442 mm)
- Weight: 22 lb (10 kg)

Alcatel-Lucent OmniPCX Enterprise M2 (cabinet)

- 1 ACT 28 or 2 ACT 14
- Depth: 10.04 in. (255 mm)
- Height: 29.13 in. (740 mm)
- Width: 22.44 in. (570 mm)
- Weight: 154.32 lb (70 kg)

Alcatel-Lucent OmniPCX Enterprise AC 14 in data rack format (19 in. rack)

- 48 V power supply and battery backup
- 1 ACT 14
- Depth: 15.09 in. (383.4 mm)
- Height: 10.41 in. (264.4 mm)
- Width: 19.15 in. (486.3 mm)
- Weight: 66.14 lb (30 kg)

Alcatel-Lucent OmniPCX Enterprise RM3 (19 in. rack)

- 9 modular slots (stackable up to 3 with RM1)
- Takes optimized hardware modules (or/and e-CS communication server)
- Depth: 15.75 in. (400 mm)
- Height: 6.06 in. (154 mm)
- Width: 17.40 in. (442 mm)
- Weight: 38 lb (17 kg)

Alcatel-Lucent OmniPCX Enterprise M3 (cabinet)

- 2 ACT 28 or 2 ACT 14
- Depth: 20.31 in. (516 mm)
- Height: 59.05 in. (1500 mm)
- Width: 22.4 in. (570 mm)
- Weight: 242.5 lb (110 kg)

Alcatel-Lucent OmniPCX Enterprise ACT 28 in data rack format (19 in. rack)

- 48 V power supply and battery backup
- 1 ACT 28
- Depth: 15.09 in. (383.4 mm)
- Height: 20.87 in. (530 mm)
- Width: 19.15 in. (486.3 mm)
- Weight: 154.3 lb (70kg)

International Directives and Standards

- EC Directives
- 94/9/EC: ATEX
- 1999/5/EC: R&TTE
- 1999/519/EC: SAR
- 2002/95/EC: ROHS
- 2002/96/E: WEEE
- 2004/108/EC: EMC
- 2005/32/EC: Ecodesign
- 2006/95/EC: LVD

Safety

- IEC 60950-1
- UL1950-1

SAR

- Cenelec EN50360
- Cenelec EN50385
- FCC 2.1093 and IEEE 1528

EMC

- IEC-CISPR22 Class B
- Cenelec EN55022 Class B
- FCC Part 15B
- IEC-CISPR24
- Cenelec EN55024
- IEC-EN61000-3-2
- ETSI-EN 301 489-06: DECT
- ETSI-EN 301 489-17: Bluetooth and WLAN

Radio

- ETSI EN 300 328-2: 2.4 GHz
- ETSI EN 301 893: 5 GHz
- ETSI EN 301 406: DECT
- FCC Part 15 Subpart C and D

EX Environment

- Cenelec EN 50014
- Cenelec EN 50018
- Cenelec EN 50019
- Cenelec EN 50020

Miscellaneous environments

- Cenelec EN 50121-4: Railway applications
- IEC 60945: Maritime

Environmental conditions

- ETSI – ETS 300 019 Part1-1: Storage
- ETSI – ETS 300 019 Part1-2: Transportation
- ETSI – ETS 300 019 Part1-3: In Use

Telecom

- ETSI EG 201 121
- ETSI TBR 021
- ETSI TBR 010
- ETSI TBR 022
- ETSI TBR 003
- ETSI TBR 033
- ETSI TBR 004
- ETSI TBR 034
- ETSI TBR 008
- ETSI TBR 038
- ITU-T H.323
- FCC Part 68
- Canada CS03

Over voltage and over currents

- ITU-T K.21
- ITU-T K.22

Application partner interfaces (AAPP program)

- XML Web Services
- CSTA
- TSAPI Premium Server
- TAPI Premium Server
- DR-Link
- Info Center
- RTI
- WMI
- Alcatel-Lucent Hospitality Link
- CDR
- VPS
- OmniVista 4760 Tickets Collector
- OmniVista 4760 VoIP Performance Tickets Collector
- SIP
- QSIG
- Paging Interface

CONCLUSION

Alcatel-Lucent is committed to helping large enterprises optimize their networks and services, generate new business, and further their competitive advantage.

Alcatel-Lucent is a global provider of corporate communication products and solutions. As such, our customers can choose to benefit from simplified one-stop shopping, rather than having to buy multiple products from various providers or vendors. Furthermore, we have prepared pre-bundled solutions that carefully correspond to enterprise business user profiles, so that large enterprises can quickly and easily select solutions that are relevant to their users. Finally, our solutions are specifically tailored for individual organizations. In this way, companies can remain at the cutting edge of technology with tools that evolve and grow to match their changing needs and business demands.

In addition to corporate solutions, Alcatel-Lucent has developed a whole range of services that are complemented by our business partners' offers. We are committed to helping large enterprises successfully implement new services, rapidly improve business processes, and achieve predictable and fast ROI.

FOR MORE INFORMATION

For more information about the Alcatel-Lucent OmniPCX Enterprise, please visit http://www.alcatel-lucent.com/

www.alcatel-lucent.com

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